Abstract: Collaboration at work is gradually changing. Gone are the days where fax and e-mail were the main way of communication to do the work, and where IT is in control of the tools used by employees. Millennials are used to social media with feeds, self-expression, and ad hoc peer communication. When they enter the workforce they expect to work in a similar way. Wikis and social media platforms like Yammer and Slack address the needs of Millennials. These platforms are often deployed virally in the cloud. The modern workplace has no choice but to embrace these platforms. Question on security and compliance need to be addressed. Learn from the founder of TWiki and co-author of the Wikis for Dummies book how to navigate the new collaborative landscape. Learn also how a structured wiki can automate your workflows and how it helps transform your organization into a lean and agile enterprise.

See also: What is TWiki, Public TWiki Sites, TWiki Screenshots, TWiki.org Blog

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Slide 1: Social Media and Structured Wikis at Work

Enterprise Collaboration for Millennials

• Collaboration at work is gradually changing
• Millennials expect social media, feeds, self expression, ad hoc peer communication
• Wikis & social media platforms like Yammer and Slack enter the workplace via the cloud
• Structured wikis can automate workflows
• Learn from the founder of TWiki and co-author of the Wikis for Dummies book how to navigate the new collaborative landscape

Presentation for Silicon Valley-China Wireless Association, 2015-11-21
-- Peter Thoeny - peter09@thoeny.org - TWiki.org

Slide 2: About Peter

• Peter Thoeny
• CTO and Founder of TWiki.org, an Enterprise Collaboration Platform provider
• Founder of TWiki, the open source wiki for the enterprise, managing the project for 15+ years
• Invented the concept of structured wikis - where free form wiki content can be structured with tailored wiki applications
• Thought-leader in wikis and social software, featured in numerous articles and technology conferences including Business Week, Wall Street Journal and more
• Graduate of the Swiss Federal Institute of Technology in Zurich
• Lived in Japan for 8 years, developing CASE tools
• Now in the Silicon Valley for 15+ years
• Co-author of Wikis for Dummies book
Slide 3: Agenda

- The Millennial Generation
- Enterprise collaboration space & social media
- IT and shadow IT
- Collaborative cultures at work
- What is a Structured Wiki? What are wiki apps?
- Case study: Morgan Stanley

Slide 4: The Millennial Generation

- Millennials (aka Generation Y) - demographic cohort following Generation X
  - Born early 1980s to early 2000s, e.g. teenagers to young adults today
- Traits:
  - Confident and tolerant - LGBT, abortion
  - Strive for work-life balance
  - Sense of entitlement - workplace expectation
    - Look for versatility and flexibility in the workplace
  - Expect instant gratification - Instagram
  - Self expression/narcissism - selfies
  - Short attention span
- What are the implications for collaboration at work?
Slide 5: Enterprise Collaboration Landscape Today - Social Enterprise

*From Centralized, to Decentralized, to Collaborative*

Slide 6: Trend "Enterprise Software" vs. "Social Business"

"No-Software" logo is copyrighted by Salesforce.com
Slide 7: IT and Shadow IT

- Traditional IT: Information technology department decides on internal systems and solutions, and provisions and maintains them for employees
  - Microsoft Exchange Server, SharePoint, Active Directory, Confluence, TWiki, ...

- Shadow IT: Employees use IT systems and solutions inside organizations without explicit organizational approval
  - Viral marketing: Yammer, Slack, Google Docs, Evernote, ...
  - What about security and compliance?

Slide 8: Shadow IT: Implications

- DIY (do it yourself) IT is not stoppable, especially with Millennials - implications?

- Security: Content lives in the cloud, e.g. outside of the corporate firewall
  - Entrust mission critical content to 3rd party?
  - Subpoena?

- Compliant with Regulations?
  - Sarbanes-Oxley, HIPAA, PCI DSS, ...

- Inefficiencies:
  - Inconsistent ways to do work across teams
  - Siloed content
Slide 9: Collaborative Cultures at Work

- **Document centric culture:** - MS Office, Google Docs
  - Individual ownership - I own this spreadsheet
  - Hierarchy - on storing content, as well as org structure
  - Limited sharing - within group; hold back

- **Wiki centric culture:** - Wikipedia, Confluence, TWiki
  - Collaborative - we work together
  - Organic: Incomplete, constant change
  - Organize and garden content
  - Memory - "corporate brain"

- **Feed culture:** - Facebook, Yammer, Slack
  - Good to communicate content of short lifespan
  - I share and I consume - individual
  - Circles - followers and friends
  - Transient - no memory

Slide 10: Social Media at Work: Viral Shift towards Information Age

**Industrial Age Org**

Share only as needed

**Information Age Org**

Share as much as possible

- Details: TWiki.org blog Social Media at Work: Viral Shift towards Information Age
• **Goal**: Make the workplace more agile, transparent and productive
• **How**: Create wiki apps to automate business processes and workflows
Slide 13: Structured Wiki Applications - Custom Purpose & Situational

*Wiki Apps: Created ad hoc & iteratively to address specific needs*

- Outage Tracker of an IT organization
- Ontology and Relationship Map of a Canadian electric utility
- Decision Tree for Troubleshooting of a Canadian electric utility
- Sales Pipeline Tracker of TWiki consultancy

Slide 14: Example Wiki App: Outage Tracker

**Monitoring of Outages and Incidents**

<table>
<thead>
<tr>
<th>Monitoring Center</th>
<th>Out</th>
<th>High</th>
<th>Mod</th>
<th>Low</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>DE-HA</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>IN-BA</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
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<td>0</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>US-CA</td>
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<td>0</td>
<td>0</td>
<td>2</td>
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<tr>
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<td>0</td>
<td>3</td>
</tr>
<tr>
<td>US-TX</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>6</td>
<td>1</td>
<td>6</td>
<td>1</td>
<td>14</td>
</tr>
</tbody>
</table>

**Events of US-TX**

<table>
<thead>
<tr>
<th>Event</th>
<th>Name</th>
<th>Start Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>000011</td>
<td>T22 server: Disk capacity 90%</td>
<td>2007-10-19</td>
</tr>
<tr>
<td>000012</td>
<td>Network sluggish Intermitently</td>
<td>2007-10-22</td>
</tr>
<tr>
<td>000017</td>
<td>Tsunami West Coast</td>
<td>2008-03-12</td>
</tr>
</tbody>
</table>

Show outages/incidents by monitoring center
Create new outage/incident
Slide 15: Example Wiki App: Ontology and Relationship Map

Slide 16: Example Wiki App: Decision Tree for Troubleshooting
Slide 18: What is a Structured Wiki?

- Goal of a structured wiki:
  - Combine the benefits of a wiki and a database application
- Wiki:
  - Organic & never complete: Content & structure is open to editing and evolution
  - Open: Readers can refactor incomplete or poorly organized content at any time
  - Hyper-linked: Many links to related content due to WikiWord nature
  - Trust: Open for anyone to edit, "soft security" with audit trail
- Database application:
  - Highly structured data
  - Easy reporting
  - Workflow (e.g. purchase requisition)
  - Access control
Slide 19: What is TWiki?

- TWiki is a wiki engine and wiki application platform, established in 1998
- TWiki is specifically built for the workplace
- Large number of TWiki Extensions: 200+ actively maintained extensions
- Open Source software (GPL) with active community, hosted at http://TWiki.org/
- 2,000 downloads per month, 800,000 total downloads, estimate 10,000+ installations, 130+ countries
- Est. $27M of human capital invested (ref. Open HUB)
- Source Forge 2009 "Best Enterprise Project" Finalist (among 230,000 open source projects)

Slide 20: What is TWiki used for?

- Shared notebook for teams: Projects, repository, scheduling, meetings
- Departmental collaboration tool: Processes, project reviews, QA tracking
- Intranet publishing tool: IT, HR, ISO standards
- CMS with focus on free-form collaboration: Requirements capture
- Knowledge base: Problem/solution pairs with attached patches
  - TWiki started its life as a KB for support
- Platform to create wiki applications, such as news portals, inventory systems, issues tracking systems

Slide 21: Who is using TWiki?

- Many corporations, such as 3Com, AMD, Alcatel, AT&T, Boeing, Broadcom, ... Xerox
  - BT, Disney Corp, Morgan Stanley, Motorola, SAP, TI, Wind River and others have submitted success stories
  - Major TWiki deployments: Google, Morgan Stanley, Nokia, Oracle
- Academia, such as Biowiki of UC Berkeley
- Government, such as NIST Cloud Computing Collaboration Site
- Also Internet communities, such as XP Days Germany
- Browse public TWiki sites to see how is using TWiki in various ways
The sheer scale of the deployment at Morgan Stanley is staggering in enterprise scale terms:
- 30,000 employees use the platform
- 4+ Million page views per month (crawlers excluded)
- 300,000 updates/month
- 500,000 web pages managed in the system
- Managed across 3 Data Centers with HA (high availability)

Primary use:
- Technical Operations Manuals - Document storage for the IT teams to manage day to day operations of their software assets
- Software Product Documents - A place for their internal teams to store documents during the development of their internal software
- Team Workspaces - Webs for their teams to share/collaborate project content such as project status, meeting minutes, and progress reports
- Data aggregation - 5000+ TWiki topics retrieving data from other systems such as RSS feeds, Jira, trouble ticket system, change management system, RDBMS, SharePoint, etc.

Source & detail: [http://twiki.org/cgi-bin/view/Blog/BlogEntry201110x1](http://twiki.org/cgi-bin/view/Blog/BlogEntry201110x1)
Slide 25: Summary

- Millennials entering the workplace influence how we do work
- Social media use at work makes the workplace more collaborative
- Plan for implications of shadow IT
- Collaborative cultures at work - try to move towards a wiki centric culture
- A structured wiki is a powerful platform to increase productivity and transparency at work

Slide 26: How Can a Structured Wiki Help Your Organization?

Q&A

This presentation: http://bit.ly/twPres15
(http://twiki.org/cgi-bin/view/Codev/TWikiPresentation2015x11x21)

-- Peter Thoeny - peter09@thoeny.org - TWiki.org

Slide 27: BACKUP SLIDES

BACKUP SLIDES
Slide 28: TWiki Open Source Community

- **Clear mission, charter, roadmap** and **release focus**
- **10+ years - several iterations on governance**
- Ubuntu style **community governance** and **code of conduct** since Oct 2008
- **Small but helpful & inviting community**
- Call to action: **Get involved!**

Slide 29: Under the Hood: TWiki I/O Architecture
Slide 30: Usage Pattern in a Structured Wiki

1. Users typically start with unstructured wiki content
   - Example: Call-center status board
2. User discovers patterns in content
   - Example: Call-center status board has fixed list of users and fixed list of time slots
3. User or administrator builds an application, typically in iterations
   - Goal: Automate tasks based on discovered patterns
     - In other words: A structured wiki enables users to build lightweight applications

Slide 31: Example: Call-Center Status Board, v1

- Requirement for status board:
  - Easily see who is on call at what time
  - Easily change the status board
- Start with a simple bullet list for status board v1:
  - 07:00am - 11:00am: Richard
  - 11:00am - 03:00pm: Peter
  - 03:00pm - 07:00pm: Sam

- See CallCenterStatusBoard example

Slide 32: Example: Call-Center Status Board, v2

- Status board v1 does the job, but lets make it more presentable and useful:
  - Convert the bullets into a table
  - Use WikiWord links to team member's home pages for easy reference
  - Add Backup person
- Improved status board v2:

<table>
<thead>
<tr>
<th>Start</th>
<th>End</th>
<th>Primary</th>
<th>Backup</th>
</tr>
</thead>
<tbody>
<tr>
<td>07:30am</td>
<td>11:00am</td>
<td>Sam Hasler</td>
<td></td>
</tr>
<tr>
<td>11:00am</td>
<td>03:00pm</td>
<td>Richard Donkin</td>
<td></td>
</tr>
<tr>
<td>03:00pm</td>
<td>07:00pm</td>
<td>Peter Thoeny</td>
<td></td>
</tr>
</tbody>
</table>

- See CallCenterStatusBoardV2 example
Slide 33: Example: Call-Center Status Board, v3

- Status board v2 is presentable, now lets make it more user friendly:
  - Use the TWiki:Plugins.EditTablePlugin to select the times and names from a list
- Improved status board v3, view and edit:

<table>
<thead>
<tr>
<th>Start</th>
<th>End</th>
<th>Primary</th>
<th>Backup</th>
</tr>
</thead>
<tbody>
<tr>
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<td></td>
</tr>
<tr>
<td>11:00am</td>
<td>03:00pm</td>
<td>RichardDonkin</td>
<td></td>
</tr>
<tr>
<td>03:00pm</td>
<td>07:00pm</td>
<td>PeterThoery</td>
<td></td>
</tr>
</tbody>
</table>

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<th>End</th>
<th>Primary</th>
<th>Backup</th>
</tr>
</thead>
<tbody>
<tr>
<td>07:30am</td>
<td>11:00am</td>
<td>Main.SamHasler</td>
<td></td>
</tr>
<tr>
<td>11:00am</td>
<td>03:00pm</td>
<td>Main.RichardDonkin</td>
<td></td>
</tr>
<tr>
<td>03:00pm</td>
<td>07:00pm</td>
<td>Main.PeterThoery</td>
<td></td>
</tr>
</tbody>
</table>

  - See CallCenterStatusBoardV3 example

Slide 34: Wikipedia - The 800 Pound Gorilla

- Wikipedia: Wiki + Encyclopedia
- A free encyclopedia written collaboratively by you
- Project started in January 2001
- The most active public wiki: 4,000,000 articles and 18,000,000 registered users in the English language Wikipedia alone (ref. Wikipedia statistics)
- Anyone in the world can edit any page.
- Doesn't that lead to chaos?
  - Domain experts contribute
  - Well defined policies for contributing and handling content
    - BUT: Reality of edit wars, and larger interest groups overpowering smaller groups
  - Graffiti gets removed quickly (many eye balls; rollback available)
    - IBM's research on history flow of articles (gallery)
- Content can be freely distributed and reproduced under the terms of the GNU Free Documentation License (GFDL)
Slide 35: IBM Research: history flow of Islam article on Wikipedia

Slide 36: TWiki in Action

**Critical Situation Management:**
- Multi-agency secure agile collaboration
- Multiple Data Sources
- Cross-domain situational awareness
- Governance and Compliance Standards

**ROI:** React Faster, Save Lives, Focus on the Mission.

**Pattern Based Applications**

**Customized workflows**

**ALPS Water systems:**
- Order tracking system
- Collaboration with suppliers in Mexico, and distributors in Spain, Austria, Italy, Sri Lanka

**ROI:** OPEX: Headcount and space
- "racks of file cabinets moved to basement"

**Extranet**

Partner and Community outreach

**City of Melbourne:**
- President's Choice Award
- 80,000 citizen Page Views
- 100s of Edits to City Plan
- 11,000 edits by city employees

**ROI:** Stronger Community, Higher Quality Plan, High Approval Ratings

**Corporate Intranet**

Network Operations Center Customer Support Portal

**Cisco Remote Operations Services:**
- Configuration Management Database for over ~400 Customers
- Mission Critical Business Process and Technical Information
- Integration with Remedy Ticketing System
- Change Management Application, with Work Flows and Metrics
- Collaboration Platform between Engineering Communities
- Knowledge Capture, and Publication of Best Practices

**ROI:** Increased Productivity, Efficiency, and Customer Satisfaction
Slide 37: Challenges of Static Intranets

- Some content is outdated
- Incomplete content
- When was the page last updated?
- Difficult to find content
- Inconsistency across departments
- Special tools, knowledge and permission required to maintain
- Content is static, it has a "webmaster syndrome":
  If an employee discovers a page with incorrect or insufficient information, the employee will often ignore it because it takes too much time to find out who the webmaster is and to write an e-mail requesting an update.

Slide 38: Wikis and Static Intranets

- Move some/all Intranet content into a wiki
  - No difference for readers to browse and search content
  - Employees are empowered to fix content on the spot
  - Ease of maintenance
  - No need to install client side software
  - Consistent look & feel
- Paradigm shift
  - from: webmasters maintain content
  - to: domain experts and casual users maintain content

Slide 39: Challenges of E-mail

- E-mail and mailing lists are great, but:
  - Post and reply vs. post and refine/refactor
  - Great for discussion, but ... hard to find "final consensus" on a thread
  - E-mail is not hyper-linked and is not structured, content can't be grouped easily into related topics
  - E-mail and attachments are not version controlled and it is difficult to determine the history of a document
  - Not all interested people / too many people in the loop
Slide 40: Wikis and E-mail

- Move some e-mail traffic into a wiki
  - Ease of reference (cross-linking)
  - Flexible notification (favorites only, daily digest, RSS/ATOM feed)
  - Pockets of knowledge made available to interested parties
  - Audit trail / domain experts
- Paradigm shift
  - from: post & reply
  - to: post & refine & cross-link
- Send e-mail with link to content instead of content itself

Slide 41: Challenges of Business Processes

- Business processes are implemented in large scale by IT department (Sarbanes-Oxley compliance etc.)
- Teams follow formal/informal workflow to accomplish tasks, which is often a paper-based process (rolling out laptops to employees etc.)
- No resources allocated to implement applications to automate these processes; IT department has no bandwidth to implement lightweight applications for a variety of teams

Slide 42: Wikis and Business Processes

- A structured wiki is a flexible tool to support evolving processes
  - in the free-form wiki way -- linked pages, collaboratively maintained
  - and with a structured wiki application -- forms, queries, reports
- Content contributors with moderate skill sets can build web applications
- Paradigm shift
  - from: programmers create applications
  - to: all of us can build applications
Slide 43: Requirements for a Wiki at the Workplace

- Version control -- audit trail
- Access control -- security
- File attachments -- document management
- Ease of use -- productivity
- Ease of administration -- productivity
- Feature set -- create web applications
- API -- integration with existing enterprise applications
- Scalability -- room to grow
- Support -- get help when needed

Slide 44: Initial Deployment of a Structured Wiki

- Plan content and rollout
  - Pain killer vs. vitamin
- Build initial structure & wiki apps
- Populate initial content with help from early adopters
- Initial rollout with smaller group
- Train and coach users
- Do not underestimate inertia and time
- Expect quick growth after slow start
  - Example: Wind River's wiki has now 120K pages and 20K page changes / month

Slide 45: Role of Wiki Champion

- A wiki champion is a person who:
  - understands the process of the work for a given project or business (the domain), and
  - knows how to use a wiki (best practices in collaboration)
- The wiki champion is coaching the employees
  - Advocate, important role especially in the initial phase of a wiki
- Typically a part time role
- As the wikis get larger and grows laterally, new wiki champions emerge
Slide 46: Be Aware of Mental Barriers

- Wikis can be intimidating; the wiki pages appear "official" and corporate
  - Overcome your own internal resistance to edit existing content
  - Paradigm shift: Content is owned by team, not individual
- I want my contributions to be near "perfect"
  - It is more effective to post content early and let the team provide feedback and revise it iteratively

Notes

- This presentation is available at http://twiki.org/cgi-bin/view/Codev/TWikiPresentation2015x11x21
- Please provide feedback at TWiki:Codev/TWikiPresentation2015x11x21Feedback

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See also: What is TWiki, Public TWiki Sites, TWiki Screenshots, TWiki.org Blog

-- Peter Thoeny - 2015-11-20